## AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application.

## Listing of Claims

1-3 (Canceled)

4. (Currently Amended) A photoelectric conversion device having a layered structure, said layered structure comprising:

a carrier generation/multiplication layer composed of amorphous silicon to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers, said carrier generation/multiplication layer being a single layer;

an electron injection inhibiting layer composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer; and

a hole injection inhibiting layer composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer, wherein

said carrier generation/multiplication layer is provided between said electron injection inhibiting layer and said hole injection inhibiting layer,

said carrier generation/multiplication layer is prevented from holes flowing out thereof[[,]] and is prevented from electron injection thereto, and

a composition ratio C/Si of said electron injection inhibiting layer is adjusted appropriately to 1.5 or lower.

5. (Previously Presented) The photoelectric conversion device as claimed in claim 6, wherein a composition ratio N/Si of said hole injection inhibiting layer is adjusted appropriately to 0.8 or lower.

6. (Currently Amended) A photoelectric conversion device having a layered structure, said layered structure comprising:

a carrier generation/multiplication layer composed of amorphous silicon to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers;

an electron injection inhibiting layer composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer; and

a hole injection inhibiting layer composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer, wherein

said carrier generation/multiplication layer is provided between said electron injection inhibiting layer and said hole injection inhibiting layer, and

an energy level at an interface between said amorphous silicon nitride layer and said amorphous silicon layer is discontinued on a valance band side and equal on a conduction band side.

7. (Currently Amended) A photoelectric conversion device having a layered structure, said layered structure comprising:

a carrier generation/multiplication layer composed of amorphous silicon to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers;

an electron injection inhibiting layer composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer; and

a hole injection inhibiting layer composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer, wherein

said carrier generation/multiplication layer is provided between said electron injection inhibiting layer and said hole injection inhibiting layer,

an energy level at an interface between said amorphous silicon nitride layer and said amorphous silicon layer is discontinued on a valance band side and equal on a conduction band side, and

said carrier generation /multiplication layer is prevented from ~~electron~~ electrons flowing out thereof[[,]] and is prevented from hole injection thereto.

8. (Currently Amended) The photoelectric conversion device as claimed in claim 4, wherein said ~~layer~~ layered structure is formed on a surface of a substrate having at least said surface composed of polycrystalline silicon.

9. (Currently Amended) The photoelectric conversion device as claimed in claim 4, wherein said ~~layer~~ layered structure is formed on a surface of a substrate having at least said surface composed of microcrystalline silicon.

10. (Currently Amended) The photoelectric conversion device as claimed in claim 4, wherein said ~~layer~~ layered structure is formed on a surface of a substrate having at least said surface composed of monocrystalline silicon.

11. (Currently Amended) The photoelectric conversion device as claimed in claim 4, wherein said ~~layer~~ layered structure is formed on a surface of a substrate having at least said surface composed of a metal.

12. (Previously Presented) The photoelectric conversion device as claimed in claim 4, wherein a small amount of boron is introduced into said carrier generation/multiplication layer.

13. (Currently Amended) A photoelectric conversion device having a layered structure, said layered structure comprising:

a carrier generation/multiplication layer composed of amorphous silicon to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers, said carrier generation/multiplication layer being a single layer;

an electron injection inhibiting layer composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer; and

a hole injection inhibiting layer composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer, wherein

said carrier generation/multiplication layer is provided between said electron injection inhibiting layer and said hole injection inhibiting layer, and

said ~~layer~~ layered structure further comprises an electric field reducing layer for reducing an electric field adjacent an interface between said carrier generation/multiplication layer and said electron injection inhibiting layer.

14. (Currently Amended) A photoelectric conversion device having a layered structure, said layered structure comprising:

a carrier generation/multiplication layer composed of amorphous silicon to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers, said carrier generation/multiplication layer being a single layer;

an electron injection inhibiting layer composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer; and

a hole injection inhibiting layer composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer, wherein

said carrier generation/multiplication layer is provided between said electron injection inhibiting layer and said hole injection inhibiting layer, and

said ~~layer~~ layered structure further comprises an electric field reducing layer for reducing an electric field adjacent an interface between said carrier generation/multiplication layer and said hole injection inhibiting layer.

15. (Currently Amended) The photoelectric conversion device as claimed in claim 4, wherein said ~~layer~~ layered structure consists of said carrier generation/multiplication layer, said electron injection inhibiting layer, and said hole injection inhibiting layer.

16. (Currently Amended) A solid-state image sensing device comprising:

a plurality of photoelectric conversion units, each photoelectric conversion unit having a layered structure and including:

a carrier generation/multiplication layer composed of amorphous silicon to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers, said carrier generation/multiplication layer being a single layer;

an electron injection inhibiting layer composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer; and

a hole injection inhibiting layer composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer, wherein

said carrier generation/multiplication layer is provided between said electron injection inhibiting layer and said hole injection inhibiting layer, and

an energy level at an interface between said amorphous silicon carbide layer and said amorphous silicon layer is discontinued on a conduction band side and equal on a valence band side;

a plurality of accumulation units for respectively accumulating charges generated by said photoelectric conversion units; and

an output unit for outputting the charges accumulated in said accumulation units.

17. (Previously Presented) The solid-state image sensing device as claimed in claim 25, wherein a composition ratio C/Si of said electron injection inhibiting layer is adjusted appropriately to 1.5 or lower.

18. (Previously Presented) The solid-state image sensing device as claimed in claim 26, wherein a composition ration N/Si of said hole injection inhibiting layer is adjusted appropriately to 0.8 or lower.

19. (Currently Amended) A solid-state image sensing device comprising:

a plurality of photoelectric conversion units, each ~~of which~~ photoelectric conversion unit comprising:

a carrier generation/multiplication layer composed of amorphous silicon to have both the function of absorbing light and generating carriers through optical

excitation and the function of multiplying the generated carriers, said carrier generation/multiplication layer being a single layer;

an electron injection inhibiting layer composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer;

a hole injection inhibiting layer composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer; and

an electric field reducing layer for reducing an electric field adjacent an interface between said carrier generation/multiplication layer and said hole injection inhibiting layer, wherein

said carrier generation/multiplication layer is provided between said electron injection inhibiting layer and said hole injection inhibiting layer;

a plurality of accumulation units for respectively accumulating charges generated by said photoelectric conversion units; and

an output unit for outputting the charges accumulated in said accumulation units.

20. (Currently Amended) The solid-state image sensing device as claimed in claim 16, wherein said ~~layer~~ layered structure consists of said carrier generation/multiplication layer, said electron injection inhibiting layer, and said hole injection inhibiting layer.

21. (Currently Amended) A photoelectric conversion device having a layered structure, said layered structure comprising:

~~an~~ a substrate layer;

a hole injection inhibiting layer formed on only said substrate;

a carrier generation/multiplication layer formed on said hole injection inhibiting layer; and

an electron injection inhibiting layer formed on said carrier generation/multiplication layer; wherein

said carrier generation/multiplication layer is composed of an amorphous silicon ~~carbide of the p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer~~ to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers,

said hole injection inhibiting layer is composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer,

said electron injection inhibiting layer is composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer, and

an energy level at an interface between said amorphous silicon nitride layer and said amorphous silicon layer is discontinued on a valance band side and equal on a conduction band side.

22. (Currently Amended) A solid-state image sensing device comprising:

a plurality of photoelectric conversion units, each photoelectric conversion unit including:

a substrate;

a hole injection inhibiting layer formed on only said substrate;

a carrier generation/multiplication layer formed on said hole injection inhibiting layer; and

an electron injection inhibiting layer formed on said carrier generation/multiplication layer; wherein

said carrier generation/multiplication layer is composed of an amorphous silicon ~~carbide of the p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer~~ to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers,

said hole injection inhibiting layer is composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer,

said electron injection inhibiting layer is composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer, and

an energy level at an interface between said amorphous silicon nitride layer and said amorphous silicon layer is discontinued on a valance band side and equal on a conduction band side;

a plurality of accumulation units for respectively accumulating charges generated by said photoelectric conversion units; and

an output unit for outputting the charges accumulated in said accumulation units.

23. (Previously Presented) The photoelectric conversion device as claimed in claim 7, wherein a composition ratio N/Si of said hole injection inhibiting layer is adjusted appropriately to 0.8 or lower.

24. (Canceled)

25. (Currently Amended) A solid-state image sensing device comprising:

a plurality of photoelectric conversion units, each photoelectric conversion unit including:

a carrier generation/multiplication layer composed of amorphous silicon to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers;

an electron injection inhibiting layer composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer; and

a hole injection inhibiting layer composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer, wherein

said carrier generation/multiplication layer is provided between said electron injection inhibiting layer and said hole injection inhibiting layer;

a plurality of accumulation units for respectively accumulating charges generated by said photoelectric conversion units; and

an output unit for outputting the charges accumulated in said accumulation units, wherein

said carrier generation/multiplication layer is prevented from holes flowing out thereof[[,]] and is prevented from electron injection thereto, and

an energy level at an interface between said amorphous silicon nitride layer and said amorphous silicon layer is discontinued on a valance band side and equal on a conduction band side.

26. (Currently Amended) A solid-state image sensing device comprising:

a plurality of photoelectric conversion units, each photoelectric conversion unit having a layered structure and including:

a carrier generation/multiplication layer composed of amorphous silicon to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers;

an electron injection inhibiting layer composed of an amorphous silicon carbide of ~~the~~ p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer; and

a hole injection inhibiting layer composed of amorphous silicon nitride of ~~the~~ n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer, wherein

said carrier generation/multiplication layer is provided between said electron injection inhibiting layer and said hole injection inhibiting layer;

a plurality of accumulation units for respectively accumulating charges generated by said photoelectric conversion units; and

an output unit for outputting the charges accumulated in said accumulation units, wherein

said carrier generation /multiplication layer is prevented from ~~electron~~ electrons flowing out thereof[[,]] and is prevented from hole injection thereto, and

an energy level at an interface between said amorphous silicon nitride layer and said amorphous silicon layer is discontinued on a valance band side and equal on a conduction band side.

27. (Canceled)

28. (Currently Amended) The photoelectric conversion device as claimed in claim 4, wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

29. (Currently Amended) The photoelectric conversion device as claimed in claim 6, wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

30. (Currently Amended) The photoelectric conversion device as claimed in claim 7, wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

31. (Currently Amended) The photoelectric conversion device as claimed in claim 13, wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

32. (Currently Amended) The photoelectric conversion device as claimed in claim 14, wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

33. (Currently Amended) The solid-state image sensing device as claimed in claim 16, wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

34. (Currently Amended) The solid-state image sensing device as claimed in claim 19, wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

35. (Currently Amended) The photoelectric conversion device as claimed in claim 21, wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

36. (Currently Amended) The solid-state image sensing device as claimed in claim 22 wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

37. (Currently Amended) The solid-state image sensing device as claimed in claim 25, wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

38. (Currently Amended) The solid-state image sensing device as claimed in claim 26, wherein the amorphous silicon nitride of ~~the~~ n-type conductivity is hydrogenated amorphous silicon nitride of ~~the~~ n-type conductivity.

39. (New) The photoelectric conversion device as claimed in claim 6, wherein

said carrier generation/multiplication layer is prevented from holes flowing out thereof and is prevented from electron injection thereto, and

a composition ratio C/Si of said electron injection inhibiting layer is adjusted appropriately to 1.5 or lower.

40. (New) The photoelectric conversion device as claimed in claim 39, wherein said layered structure is formed on a surface of a substrate having at least said surface composed of polycrystalline silicon.

41. (New) The photoelectric conversion device as claimed in claim 39, wherein said layered structure is formed on a surface of a substrate having at least said surface composed of microcrystalline silicon.

42. (New) The photoelectric conversion device as claimed in claim 39, wherein said layered structure is formed on a surface of a substrate having at least said surface composed of monocrystalline silicon.

43. (New) The photoelectric conversion device as claimed in claim 39, wherein said layered structure is formed on a surface of a substrate having at least said surface composed of a metal.

44. (New) The photoelectric conversion device as claimed in claim 39, wherein a small amount of boron is introduced into said carrier generation/multiplication layer.

45. (New) The photoelectric conversion device as claimed in claim 39, wherein said layered structure consists of said carrier generation/multiplication layer, said electron injection inhibiting layer, and said hole injection inhibiting layer.

46. (New) The photoelectric conversion device as claimed in claim 39, wherein the amorphous silicon nitride of n-type conductivity is hydrogenated amorphous silicon nitride of n-type conductivity.

47. (New) The photoelectric conversion device as claimed in claim 6, wherein

said layered structure further comprises an electric field reducing layer for reducing an electric field adjacent an interface between said carrier generation/ multiplication layer and said electron injection inhibiting layer.

48. (New) The photoelectric conversion device as claimed in claim 6, wherein

said layered structure further comprises an electric field reducing layer for reducing an electric field adjacent an interface between said carrier generation/multiplication layer and said hole injection inhibiting layer.

49. (New) A photoelectric conversion device having a layered structure, said layered structure comprising:

a carrier generation/multiplication layer composed of amorphous silicon to have both the function of absorbing light and generating carriers through optical excitation and the function of multiplying the generated carriers;

an electron injection inhibiting layer composed of an amorphous silicon carbide of p-type conductivity to inhibit injection of electrons into the carrier generation/multiplication layer; and

a hole injection inhibiting layer composed of an amorphous silicon nitride of n-type conductivity to inhibit injection of holes into the carrier generation/multiplication layer, wherein

said carrier generation/multiplication layer is provided between said electron injection inhibiting layer and said hole injection inhibiting layer, and

discontinuity of an energy level at an interface between said amorphous silicon nitride layer and said amorphous silicon layer on a valence band side is larger than on a conduction band side.